

MISSOURI CONSERVATIONIST

VOLUME 82, ISSUE 7, JULY 2021
SERVING NATURE & YOU





When was the last time you connected with nature?

Nature is amazing. It also needs to be cared for to keep it thriving. Volunteers make a huge impact on conservation efforts in Missouri, from cleaning up streams and planting trees to helping people connect with nature. There are so many ways to give back while being out in nature and exploring Missouri.

It's time to make that connection again, and **Never Lose Touch**.



For ways to reconnect with nature, visit mdc.mo.gov/NeverLoseTouch.

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by Matt Seek

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Your guide to reconnecting with nature.

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Gray treefrog

MISSOURI CONSERVATIONIST



ON THE COVER

Bushwhacker Lake
Conservation Area

📷 **DAVID STONNER**

16–35mm lens, f/11
1/15 sec, ISO 100

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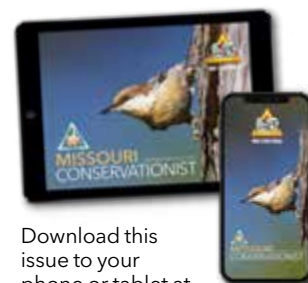
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Letters to the Editor

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INSECTS IN NEED

Thank you for *Insects In Need* by Bonnie Chasteen [May, Page 22]. Your efforts are helping people realize we can make a difference. Please continue to print articles that guide people on how to help pollinators.

John Bales
Farmington

TINY TANKS

I just read Jill Pritchard's informative article on nine-banded armadillos [May, Page 16]. While it didn't make me want to seek any out, I have a newfound respect for these new Missouri residents.

Jennifer Jamison via email

I am a native of Sweet Springs, but have lived in the south for over 50 years. I still look forward to reading each issue of the *Missouri Conservationist*. The article on the nine-banded armadillo in the May issue was especially interesting. Armadillos played a key role in finding treatments for leprosy, now referred to as "Hansen's disease" after the Norwegian doctor who discovered the responsible micro-organism. It is now curable thanks to armadillos and research done at the Hansen's Disease Center in Carville, Louisiana.

William (Bill) Brown Baton Rouge, Louisiana

FOR THE LOVE OF TREES

Putting Down Roots by Madi Nolte in the April issue brought back memories. While attending pharmacy college in St. Louis in the 1980s, my friend and I were often found in the beauty of trees. Many a time, my friend Rod and I could be found on Art Hill in Forest Park amongst a special grove of large pine trees. It was always a period of peace and reduced stress, which was quite welcome within our busy class and work schedules. We certainly never understood it at the time, but those trees probably had a lot to do with us graduating as pharmacists.

Trees have never left our lives. We are both avid stream fishermen and always welcome the shade of an overhanging tree on a sunny day, cooling us as we fish. I am a hunter and have spent countless hours in a deer stand or sitting and waiting for a turkey.

I will be retiring to the family farm (established in 1843) of which trees are a large part. My yearly allotment of 100 trees from the George O. White Nursery will be planted at the farm by a group of youngsters.

Your article really made me think all the more about how much trees have been a part of my life, and always will be.

Greg "Rudi" Rudroff Farmington

MISSOURI: A GREAT PLACE TO FISH

I have received your magazine for over 40 years, and it gets better all the time. All the articles are timely and pictures are above any expectations. I did not know how good it was in Missouri until we moved to California. I fished free in Missouri the last seven years, but now I have to pay a very high fee here. I still receive the *Conservationist* and enjoy every issue.

David Reader Lemoore, CA

A LEARNING TOOL

I've enjoyed deer hunting in northern Missouri as a nonresident and have been a fan of the *Missouri Conservationist* for years. Since the pandemic started, I've been the childcare provider for my 4- and 6-year-old granddaughters, and they love the photos and stories I read to them from your magazine. When we're done with each issue, their mother often uses the photos and stories in the online science and art classes she's teaching. We're making good use of each issue.

Mark Collinge Eagle, Idaho

CORRECTION

In the June issue, we misidentified the fish pictured on Pages 17 and 18 [*Suburban Salmon*] as common carp. It is smallmouth buffalo.



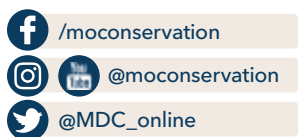
Smallmouth buffalo



Common carp

SMALLMOUTH BUFFALO: LARRY R. BECKETT; COMMON CARP: LANCE MERRY

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Want to see your photos in the Missouri Conservationist?

Share your photos on Flickr at
flickr.com/groups/mdcreaderphotos-2021,
email Readerphoto@mdc.mo.gov,
or include the hashtag #mdcDiscoverNature
on your Instagram photos.



1

1 | Green Rock
Trail at Rockwoods
Reservation by
Jason Rulo,
via email

2 | Blue dasher
dragonfly by Kathy
Duncan, via Flickr

3 | Kingfisher by
Bruce Paneitz,
via email



2



3

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TAYLOR LYNN PHOTOGRAPHY



Up Front

with Sara Parker Pauley

✖ I must admit I just wasn't in the mood for a trip. My husband and I were headed up to Kansas City to join some friends — our first trip to KC since before the pandemic. Our friends wanted to try an escape room where you get 60 minutes to figure out a number of brain-racking clues that will eventually (hopefully) lead to your escape. I think I didn't want to exert the mental energy on a Saturday ... and it was something unknown, something outside my normal. It just seemed like a lot of effort, for what gain?

So now I'll confess the rest of the story. It was a total blast. The fun of working together as a team, the dopamine rush of figuring out difficult clues, and, yes, trying something new! We relived and laughed about our shared adventure the rest of the day. I wondered why I'd been so hesitant, especially with all the mental and physical benefits of learning new things.

Sound familiar? Have you found yourself in a bit of a pandemic rut? Ready to shake off some mental and physical cobwebs and head out to the grand outdoors this summer? Then this is the issue for you. Check out *Pick an Outdoor Adventure* on Page 10 and *Never Lose Touch* on Page 20 — both wonderful resources to get the brain juices flowing as you plan your outdoor fun. Then, get to it! Just like me and the escape room, you'll wonder what took you so long.

Sara Parker Pauley

SARA PARKER PAULEY, DIRECTOR
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The *Missouri Conservationist* (ISSN 0026-6515) is the official monthly publication of the Missouri Department of Conservation, 2901 West Truman Boulevard, Jefferson City, MO (Mailing address: PO Box 180, Jefferson City, MO 65102.) **SUBSCRIPTIONS:** Visit mdc.mo.gov/conmag, or call 573-522-4115, ext. 3856 or 3249. Free to adult Missouri residents (one per household); out of state \$7 per year; out of country \$10 per year. Notification of address change must include both old and new address (send mailing label with the subscriber number on it) with 60-day notice. Preferred periodical postage paid at Jefferson City, Missouri, and at additional entry offices. **POSTMASTER:** Send correspondence to Circulation, PO Box 180, Jefferson City, MO 65102-0180. Phone: 573-522-4115, ext. 3856 or 3249. Copyright © 2021 by the Conservation Commission of the State of Missouri.

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Printed with soy ink



mdc.mo.gov 3

Nature LAB

by Bonnie Chasteen

Each month, we highlight research MDC uses to improve fish, forest, and wildlife management.

STATE-ENDANGERED SPECIES

Mead's Milkweed Recovery

✳ **Unless you own or manage a high-quality remnant of tallgrass prairie, you've likely never seen Mead's milkweed in the wild.**

Missouri State Botanist Malissa Briggler explained why.

Mead's milkweed plants in isolated prairie remnants may continue to bloom for decades, she said. "But unless they can cross-pollinate with other genetically distinct individuals, they won't produce seed. Small, isolated populations of rare plants are particularly susceptible to local extinction, especially when there is no source of seed."

To help strengthen Missouri's remaining populations of this federally threatened and state-endangered plant, Briggler led a six-year study (2011–2017) funded by the Missouri Department of Conservation and the U.S. Fish and Wildlife Service.

"We started by collecting seed from high-yielding populations in Missouri and one in Kansas," she said. "Powell Gardens near Kansas City propagated the seed in their greenhouse."



Long-term monitoring of Mead's milkweed helps scientists understand the status of remnant populations and guide future management decisions.

Six-year study identifies an effective practice for restoration and ongoing monitoring efforts

Briggler's team transplanted the seedlings in "six places where we knew populations of Mead's milkweed were barely hanging on."

Her team achieved "a fair amount of success, roughly 40 percent over the broad scheme," she said.

She added that sometimes the transplants would stay dormant, which meant that they wouldn't be visible for monitoring the next year.

"This discovery helped inform when we do surveys," she said. "Now we only survey after a prescribed burn year because we know we'll get better representation of what's there."

She admitted restoration efforts have a long way to go before we can call Missouri's recovery effort a success. But a recent genetics study conducted by the Missouri Botanical Garden "showed we had more genetic diversity in our Mead's populations than we thought."

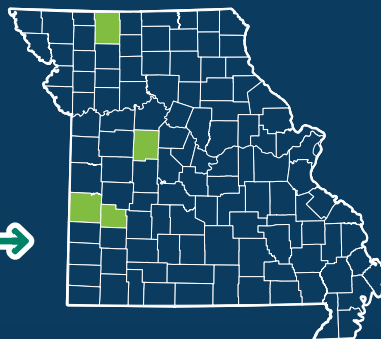
This gives her hope, but she notes that "it takes long-term monitoring to really understand how the populations are doing."

Mead's Milkweed Study at a Glance

Isolated remnant populations are vulnerable to threats like climate change and disease.

Research Objectives and Methods

- Collect seeds from abundant sources
- Propagate seedlings
- Transplant seedlings to 6 sites in 4 counties
- Monitor seedling survival and stem, bloom, and seedpod numbers
- Adjust management based on monitoring data



Results

- 40% of seedlings survived
- More stems, blooms, and seedpods appeared after a prescribed burn

Management Implications

- Because some transplants may remain dormant for a year or more, conduct repeated monitoring, preferably after a prescribed burn
- Continue propagation and translocation efforts

In Brief

News and updates from MDC



Summer tanager

DISCOVER NATURE'S RED, WHITE, AND BLUE

MDC ENCOURAGES YOU TO FIND SIGNS OF PATRIOTISM IN THE OUTDOORS IN HONOR OF INDEPENDENCE DAY



Foxglove beardtongue

➔ Get outdoors this Independence Day and try spotting red, white, and blue during a holiday hike, birdwatching, backyard fun, fishing, and other outdoor activities.

Here are some things to get you started:

- Red royal catchfly flowers
- Red male summer tanagers
- White beardtongues or foxgloves
- White great egrets
- Blue false indigos
- Male indigo buntings



Indigo bunting

Want more information on these and other Missouri plants and animals, including where to find them? Use MDC's online *Field Guide* at mdc.mo.gov/field-guide.

Need suggestions to kick-start your outdoor adventures? Find things to do at mdc.mo.gov/discover-nature/activities. Offerings include cycling on trails, backyard nature fun, birdwatching, fishing, camping, floating, outdoor cooking, hiking, hunting, nature photography, wildlife watching, and more.

Need to find places for your outdoor adventures? Visit mdc.mo.gov/discover-nature/places.

CELEBRATE SAFELY

As you celebrate this summer, MDC reminds you to be careful with fireworks, campfires, and other sources of fire that could cause a wildfire.

- ✖ **Fireworks:** Don't light fireworks in areas where the sparks could ignite dry grass, leaves, or other potential fire fuel. Always have an approved fire extinguisher and an available water supply to douse sparks or flames. Wet the area where fireworks are being discharged. Check with local ordinances and authorities for bans on fireworks and open burning.
- ✖ **Outdoor Burning:** Don't burn during wrong conditions. Dry grass, high temperatures, low humidity, and wind make fire nearly impossible to control. Check with local fire departments regarding burn bans. A person who starts a fire for any reason is responsible for any damage it may cause.
- ✖ **Driving Off Road:** Wildfires can start when dry fuel, such as grass, comes into contact with catalytic converters. Think twice before driving into and across a grassy field. Never park over tall, dry grass or piles of leaves that can touch the underside of a vehicle. When driving vehicles off road, regularly inspect the undercarriage to ensure that fuel and brake lines are intact, and no oil leaks are apparent. Always carry an approved fire extinguisher on vehicles that are used off road. Check for the presence of spark arresters on ATV exhausts.
- ✖ **Making a Campfire:** Clear a generous zone around fire rings. Store unused firewood a good distance from a campfire. Never use gasoline, kerosene, or other flammable liquid to start a fire. Keep campfires small and controllable. Keep fire-extinguishing materials, such as a rake, shovel, and bucket of water, close. Extinguish campfires each night and before leaving camp, even if it's just for a few moments.
- ✖ **Call for Help:** Call 911 at the first sign of a fire getting out of control.
- ✖ **Report Forest Arson:** Wildfires are sometimes set by vandals. Help stop arson by calling 800-392-1111 and reporting any potential arson activities. Callers will remain anonymous, and rewards are possible.
- ✖ **Prescribed Fire:** Fire used in the wrong way can create disasters. Used in the right way, fire can help create habitat for wildlife. For more information on using prescribed fire as a land-management tool, visit short.mdc.mo.gov/Zrf.

Ask MDC

Got a Question for Ask MDC?

Send it to AskMDC@mdc.mo.gov
or call 573-522-4115, ext. 3848.

Q: We have noticed several of these being built in the overflow from a lake. Can you tell me what type of creature builds these?

➔ These are crayfish chimneys.

Although aquatic critters, some crayfish species can be found far from surface waters. These burrowing species dig down to the water table, sometimes up to 20 feet! So, you'll sometimes find them in unexpected places, such as prairies. A tell-tale sign of crayfish nearby are the "chimneys" they create from excavated soil. For more information about this phenomenon, visit short.mdc.mo.gov/Zru.



Crayfish chimney

Q: If I catch crayfish in a local lake infested with zebra mussels and use them for bait in another local lake, will I still be transferring zebra mussels? Can the crayfish themselves carry zebra mussels?

➔ Regrettably, yes, crayfish can carry adult zebra mussels.

These invasive, nonnative mussels have "byssal threads,"



Zebra mussels

or threadlike structures made of protein, which adults use to attach to hard surfaces. Even if a crayfish looks "clean," some very small mussels may still be attached. Numerous instances of crayfish with zebra mussels attached have been reported. So, if a zebra mussel has already attached to a crayfish you are using as bait, the chance exists it could be transferred to the new lake or pond.

Because of this risk and others, it's always a great idea to dump the complete contents of a bait bucket several hundred feet away from any lake, pond, stream, or other body of water.

Q: Two cardinals with patchy, sparse feathers are exhibiting strange behavior at my feeder. With tail feathers and wings outspread, they pose crookedly with their beaks held open. They take a seed now and then, but



Northern cardinal

mostly perch on the feeder's edge. What's going on?

➔ This behavior is typical when birds are hot and working to thermoregulate. As they open their mouths, they are panting in a way. Scientists call this "gular fluttering" because they are fluttering their upper throat muscles to promote heat loss. Birds can't perspire, so to cool off they attempt to circulate hot air away from their bodies instead. Lighter-colored birds may open their wings and spread their tail feathers to reflect light and heat away. All birds may do the same to take advantage of a cooling breeze. When they laze around at your feeder or in

the shade, they're trying to stay cool by not expending much energy.

As for these cardinals' bedraggled appearance, this happens to many cardinals this time of year as they molt their feathers. Some cardinals molt many of their head feathers at once, making them appear bald.

You can help birds keep cool by providing a shallow basin of water with a few rocks to serve as perches, perfect for a cooling oasis to splash and drink. Keep an eye on water levels and clean out your bird bath daily.

For more information on how birds stay cool, visit: fws.gov/midwest/news/StayingCool.html.



Christine Hibler

ST. CHARLES COUNTY
CONSERVATION AGENT

offers this month's

AGENT ADVICE

If you're ready to get your motor running and head out on the waterway, it's best to brush up on boating safety first. Always tell someone where you're going, who's with you, what time you will return, and how to reach you. Also, leave a contact number if your return plans don't work out. Be sure to have proper safety equipment on board, including a fire extinguisher and easily accessible life jackets for each person aboard (passengers under 7 must always wear a life vest). Make sure your navigation lights are working and properly illuminating. Finally, never drink and boat. Always have a designated boating operator. Time on the water is a great way to make memories, but safety and common sense are key. Have fun out there!

What IS it?

Can you
guess this
month's
natural
wonder?

*The answer is on
Page 9.*



WE ARE CONSERVATION

Spotlight on
people and partners

by Angie Daly Morfeld

Bob and Barb Kipfer

➔ When Bob and Barb Kipfer of Springfield purchased 400 acres on Bull Creek in 1995, they embarked on a much larger conservation journey. Working with MDC, they planted 2,000 trees to stabilize a 300-foot bank eroded by the 1993 flood. In addition to work on their land, the Kipfers are active members of the Springfield Plateau Master Naturalist Chapter, volunteering more than 7,500 hours over the past 11 years.

Mentoring future conservationists

They volunteer once a week at Wonders of the Ozarks Learning Facility, a Springfield-based nature school for fifth graders. They also partner with Missouri State University, allowing graduate research projects to take place on their property.

In their own words

The Kipfers have made plans to donate their property to Missouri State University for a research field station. "The trust protects the property," Bob said. "As part of the trust, the land can't be sold for 50 years."

by Noppadol Paothong



Stream Team couple Barbara and Bob Kipfer have been working to improve the bank on their property.

What's **your** conservation superpower?

NEW PERMITS ALLOW COMMERCIAL PHOTOGRAPHY AND FILMING ON CONSERVATION AREAS

Starting July 1, professional photographers and videographers may photograph and film on MDC areas once they obtain a new commercial use permit. The new regulations come amidst requests from photographers and videographers to allow commercial photography and videography on conservation areas.

Commercial use is defined as any activity that directly or indirectly results in financial gain, or where money is exchanged in connection with the activity. Professional, for-profit photography and filming have historically been restricted on our areas as "commercial use" activities.

Commercial use permits are not required for news agencies, amateur or "hobby" photographers and videographers, or those taking personal pictures or videos. Photography and filming on our areas for non-commercial use have been and remain allowed without the need for a permit.

A **Commercial Photography Permit** will be required for commercial photographers on our areas with an associated fee of \$100 annually. The permit expires on June 30 each year.

A **Commercial Videography Permit** will be required for all commercial videography on our areas with an associated fee of \$500 per day.

Commercial photographers will also need a no-cost **Special-Use Permit** in certain situations:

- Special accommodations requested for activities normally not allowed on conservation areas, such as after-hour access, vehicles on non-public roads, etc.
- Use of unmanned aerial system (UAS) or drone

- Use of props larger than an average person can carry
- When more than 10 people are involved
- On MDC areas associated with nature and education centers, staffed ranges, offices, and on the following department areas:
 - ▶ Burr Oak Woods Conservation Area
 - ▶ August A. Busch Memorial Conservation Area
 - ▶ James A. Reed Memorial Wildlife Area
 - ▶ Rockwoods Reservation

Other county, state, and federal land-management agencies allow commercial photography and filming on their areas through commercial permits with associated fees. Our staff reviewed other agencies within and outside the state to determine the price structure.

The proposed regulations were initially approved by the Missouri Conservation Commission in September 2020. Following initial commission approval, the proposed regulations were submitted by MDC to the Office of the Secretary of State for a 30-day public comment period in October 2020. Following a review of comments received, the commission gave final approval to the proposed regulations in December 2020. The regulations go into effect July 1.

For more information on commercial photography and videography permits, visit short.mdc.mo.gov/ZrY.

Professional photographers and videographers can apply for MDC's commercial use permits online at short.mdc.mo.gov/Zrg. Please allow 10 business days for processing Commercial Photography Permits and 30 days for processing Commercial Videography Permits.

WHAT IS IT?

CECROPIA MOTH CATERPILLAR

Cecropia moth caterpillars feed on more than 20 species of Missouri trees and shrubs, including various maples, willows, cherries, plums, apples, dogwoods, and lilacs. Like thousands of species of caterpillars, the cecropia moth caterpillar performs a natural pruning service. As they grow, cecropia moth caterpillars provide sizable meals for their predators. Their name is derived from Cecrops, an Athenian king in Greek mythology.



Pick an Outdoor ADVENTURE

by Matt Seek | illustration by Shawn Carey

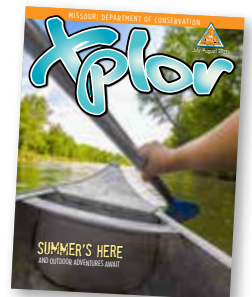
HIKING! FISHING! CAMPING! BIGFOOT? ADVENTURE AWAITS AT ONE OF MISSOURI'S MORE THAN 1,000 CONSERVATION AREAS.

After a year of feeling cooped up, it's time to pack up the family and hit the open road. In a first-of-its-kind, cross-over event, *Missouri Conservationist* is sharing this summer of adventure with our sister publication for kids, *Xplor*, to help families plan that outdoor adventure and begin making a lifetime of memories. Using the classic "pick-an-adventure" format and the many planning resources available from MDC, parents and kids — or adults without children — can sample the variety of outdoor opportunities available at MDC's more than 1,000 conservation areas. The story

that follows can also be found in the July/August issue of *Xplor*.*

Regardless of which version of the story you use, you can sit down with your kids — or grandkids — and start planning that adventure of a lifetime.

* If your child or grandchild doesn't subscribe to *Xplor*, you can sign them up for it online at mdc.mo.gov/xplor. Like *Missouri Conservationist*, it is free to all Missouri residents.



Road Trip Toolkit

➤ **mdc.mo.gov**

Your one-stop-shop for planning an outdoor adventure. Search for “things to do.”

🎧 **Nature Boost**

Need something to listen to on your drive to the wild? Download episodes of *Nature Boost* wherever you get your podcasts.

🎣 **MO Fishing**

This free app offers fishing reports, regulations, information on fish species, and maps of public boat ramps, underwater fish structures, and more.

🌿 **iNaturalist**

Use this free app to identify wildflowers, insects, birds — whatever you point your smartphone at.

🗺️ **MO Outdoors**

Use this free app to get turn-by-turn directions to conservation areas, shooting ranges, and nature centers. Tailor your search to specific activities, including birdwatching, camping, fishing, hiking, hunting, or shooting.

Start Here

1 Your eyelids snap open like spring-loaded window shades. Something — you aren't sure what — has jolted you from a deep and pleasant slumber.

The clock on your dresser reads 5 a.m. Your foggy brain manages to remember it's Saturday, the first day of summer break, and you had big plans ... to sleep in.

Just as you're rolling over to return to dreamland, you hear something: a rumble from the garage, as if an avalanche of boxes had suddenly crashed onto the concrete floor.

What do you do?

- ➔ Stick to Plan Zzz and go back to sleep. It's probably just the cat. **Go to 2.**
- ➔ Could a robber be ransacking your garage? You'd better investigate. **Go to 3.**



2 You snuggle deeper under the covers. Just as you're drifting off, you feel the cat drop lightly onto your bed and curl up for a nap.

You dream about roasting marshmallows over a crackling campfire. Bigfoot, three little green space aliens, and your brother sit around the glowing coals, each holding a stick with marshmallows exhibiting various degrees of charred-ness. Bigfoot has at least a dozen marshmallows threaded onto his stick. You think this is slightly greedy, but you feel it's unwise to point out.

Bigfoot grunts that he's going to get some graham crackers and chocolate. When he stands up, he bonks his hairy head on a low-growing branch. As the limb cracks neatly in two, it makes a hollow *knock! Knock! KNOCK!* And Bigfoot, seemingly unfazed, says something strange:

“Wake up sleepy-head. We're burning daylight.”

You open your eyes to find Dad standing in the bedroom. “Get dressed,” he says, “and meet me in the garage.”

➔ **Go to 4.**

3 You tiptoe down the hallway. The closer you get to the garage, the worse this idea seems. The baseball bat you brought along as a robber-be-good stick feels harmless and silly. You hear boxes scrape across the garage floor and clinks and clunks as someone — definitely not the cat — sorts through their contents.

The door to the garage is ajar. Barely breathing, you peak through the crack. You've got a bad feeling about this ...

➔ **Go to 4.**

4 “You're finally up,” Dad says. He's sitting in the eye of a gear hurricane. The garage floor swirls with clouds of fishing rods, canoe paddles, backpacks, and hiking boots. As you stare, wondering A) how many gallons of coffee Dad has consumed, and B) what possessed him to clean out the garage at such an awful hour, he gathers up a cast-iron frying pan, a can of bug spray, and a roll of toilet paper and chucks them — seemingly without thought — into the gaping hatchback of the family car.

“We're going on a road trip!” Dad proclaims.

An unsettling gleam in his eye worries you, but you know it's too late to walk him back from his plan. Your brother is already buckled into the back seat of the car, happily gnawing on a granola bar.

“Where?” you manage to ask.

“That's the best part,” Dad says. “I don't know. It'll be an *adventure*.”

He hands you his phone and taps an app called “MO Outdoors.” The screen shows several buttons and asks a simple question: What would you like to do?

Which button do you push?

- ➔ Camping. **Go to 5.**
- ➔ Hiking. **Go to 13.**
- ➔ Fishing. **Go to 29.**

5

You tap the camping button, and the screen displays a long list of conservation areas. You had no idea there were so many places in Missouri where you could pitch a tent!

By now, you're strapped in to the passenger seat, and Dad is pulling the car out of the garage. "Where are we going?" he asks.

"I think I've found the perfect place," you say after scrolling through several options.

→ **Go to 6.**



6

It looks like you have the conservation area all to yourselves. You find a campsite near a gurgling stream. After pitching the tent, you spread out to explore the surrounding woods.

Birds call from the treetops. A gray squirrel scolds you from a branch. Your brother finds a spotted salamander hiding under a rotting log.

"C'mere," Dad yells from the stream. "Look what I found."

He holds up a dirt-smeared bottle, pulls out the cork, tips the bottle upside-down, and a rolled-up piece of paper falls out. You unroll the paper. It looks like a map. And just like in the movies, a black X marks the spot where treasure must be!

"Look here," Dad jabs a finger at the map. "This is that horse-shoe bend just upstream. And here's the clearing where we're camped. The X is only a half mile north."

A smile is starting to widen across Dad's face. You know what he's thinking, but what do you want to do?

→ Ahoy, matey! Let's find some buried booty. **Go to 7.**

→ Whoever hid the treasure doesn't want to share. Let's pretend we never found the map. **Go to 8.**

7

"It's got to be around here somewhere," you say.

You found the beehive, indicated on the map by a crudely drawn tree with bees buzzing around it. From there you stepped 50 paces north and found the next marker: a boulder shaped like a fish. Now, after carefully walking 30 paces due west — just like the map said — you can't find anything.

You're standing in a cathedral of towering oaks. Moss carpets the shady ground. And everywhere you look are yellow, trumpet-shaped mushrooms. It's a stunning spot. But nowhere do you see any hint of buried treasure.

"I think we found it," Dad says.

What?! "Where?"

He points to a mushroom at your feet. "Those are chanterelles, one of the tastiest mushrooms in the world. Somebody didn't want to forget how to find this spot."

You reach down and pick it up. It smells earthy and a bit like apricots. Your brother has made his shirt into a basket and is already hard at work filling it with fungi.

"I know what to do with these," Dad says. "But pick just a few. Let's leave most for next year — and for whoever drew the map."

→ **Go to 8.**



Chanterelles

8

The campfire crackles and embers dance in the night sky. Earlier, Dad cooked chicken with chanterelle mushrooms in foil packets over the glowing coals. You never knew something so simple could taste so good!

Now you're roasting marshmallows for s'mores. Dad is holding a flashlight under his chin and telling a spooky story about a mushroom hunter who got taken by space aliens *in these very woods*. Your brother, his face growing paler with every sentence, keeps scooting closer to you. He hasn't noticed his marshmallow is on fire.

An owl hoots from somewhere in the woods, sending your brother over the edge. He drops his burning marshmallow, scrambles to the tent, and zips himself inside. After a s'more (or maybe it was three), you join him. Dad says he's going to sleep "under the stars."

→ **Go to 9.**



9 Your brother elbows you awake. “What?!” you hiss. “Dad’s gone,” he says. “I got up to use the bathroom, and his sleeping bag’s empty.”

You’re sure your brother is mistaken. Dad would never leave you alone in a strange campground in the middle of the night.

But sure enough, he’s gone.

You call out several times, but the only thing that calls back is a croaking bullfrog. Suddenly, the darkness is sliced by a piercing beam of light. The beam shines upward from a nearby pond like an elevator to the heavens. Then, just as suddenly as it appeared, it flickers off, and darkness returns.

“Dad’s been abducted by aliens,” your brother wails.

You’re sure this isn’t the case. There’s no such thing as aliens, right? Nevertheless you ...

➔ Sneak to the pond to check out the light. **Go to 10.**

➔ Zip yourself in the tent and stay awake until Dad returns. **Go to 12.**



American bullfrog

10 You creep to the pond with your brother as your shadow. As you approach the shoreline, you hear muffled voices and see the same bright light flicker on and off. You get the feeling that someone — or *something* — is watching you from the shadows. You spin around just in time to see a figure, covered in mud, splash out of the moonlit water and walk straight toward you.

“Glad you could join us,” Dad says, wiping mud off his chin. “Hold this flashlight while I run to the car for fresh batteries.”

When he returns, Dad explains how he got invited to join a couple locals on a frog hunt. As blobs of mud drip off his body, he insists we join him.

➔ Why not? **Go to 11.**

➔ Why would I want to? **Go to 12.**

11 You quickly learn that bullfrogs are as jittery as your brother after his third can of cola. And sneaking close enough to nab one with your bare hands takes skill — and a little luck. But it’s tons of fun.

You slowly circle the muddy pond bank, sweeping your flashlight all around. When you spot a bullfrog, you keep the light right in its face. This seems to hypnotize the hopper, which allows you to creep toward it, reach out s-l-o-w-l-y and ... **CROAK!** the frog leaps deftly out of reach.

You finally manage to catch your limit of eight frogs. And you’ve never had so much fun and gotten so dirty doing it. You’ll need to wash your sleeping bag — maybe twice — when you get home. But you don’t care.

➔ **Go to 12.**

12 Soon, your eyelids grow heavy, and you drift off to sleep.

The smell of smoke wrestles you awake. You unzip the tent to find Dad frying chicken wings in a cast-iron skillet. You’ve never had chicken for breakfast, but after last night’s adventure, you’re ready for anything.

Dad waits until you’ve gobbled down a couple wings before commenting. “I didn’t know you’d like frog legs,” he says. “They’re good, aren’t they?”

Even after you learn what they are, they’re so tasty you paper-rock-scissors with your brother for the final frog. He, unfortunately, wins.

➔ You help Dad strike camp and load everything into the car. **Go to 38.**



Frog legs

13 You tap the hiking button, and the screen displays a long list of conservation areas. You had no idea there were so many places in Missouri where you could hit the trail!

By now, you're strapped in to the passenger seat, and Dad is pulling the car out of the garage. "Where are we going?" he asks.

- ➔ For an easy walk in the woods. **Go to 14.**
- ➔ To the rooftop of Missouri. **Go to 20.**
- ➔ Back in time. **Go to 26.**



15

You plant your toes in a couple of dimples on the wall and reach up to grab an exposed tree root growing above your head.

Hiiiiii! That's odd. Did the root just ...

You realize, as your fingers curl around its scaly skin, that the root is not a root. It's a black snake! And it seems offended that you just used it for a climbing hold.

You tumble off the rock and land with an *oomph!* on your backside. The snake slithers into a rocky crevice. What do you do?

- ➔ Run screaming back to the car. **Go to 17.**
- ➔ What's the big deal? It's just a snake. Let's keep hiking. **Go to 18.**



Western ratsnake

14

Despite your early start, the lot at Burr Oak Woods Conservation Area is nearly full when Dad parks the car at the Bethany Falls trailhead. *This must be a popular place.*

The trail winds off into a shady forest, offering an escape from the sweltering sun. Bird calls ricochet around the treetops. You spot a turkey and her gangly poults scratching through leaf litter. Your brother finds a tree-frog sleeping on the knobby bark of an oak.

Eventually, the path disappears into a maze of rocks. You walk in and find yourself surrounded by head-high walls of limestone.

With a grunt, Dad plops down for a sip of water. Your brother — who must be half-squirrel — immediately begins scrambling up the face of a nearby wall. Do you join him?

- ➔ Rock on! You're a regular Alex Honnold. **Go to 15.**
- ➔ You'll leave the climbing to squirrels and little brothers. **Go to 16.**

16

Maybe choosing to sit beneath your brother while he was climbing wasn't your best idea.

But it worked out well for him. You hear a squeal of surprise, and the next thing you know, your brother is sprawled out on top of you. *Oomph!*

"A spider crawled over my hand," he says. "I think I'm done climbing for today."

- ➔ **Go to 18.**



Speckled wolf spider

17

You're nearly back to the car before Dad catches up.

"It's just a snake," he says. "It was more scared of you than you were of it."

You're not sure you believe him.

"It'd be a shame to end our road trip so early," Dad says. "Should we check out the nature center since we're here?"

→ Why not? **Go to 19.**

→ You've had enough nature for now. **Go to 38.**



White-tailed deer

18

After a short water break, you continue hiking. The trail passes through a prairie dappled with wildflowers. You watch a doe and her twin fawns graze in a grassy savanna. By the time you circle back to the parking lot, your walk in the woods has left you content and relaxed.

"Should we check out the nature center since we're here?" Dad asks.

→ Of course! **Go to 19.**

→ You've had enough nature for now. **Go to 38.**



19 In the nature center, you explore a gurgling stream, watch huge bass swim lazily in a 3,000-gallon aquarium, and get a closeup look at a toddler-sized woodpecker.

At Dad's urging, you attend a program where a guy who identifies himself as a "fly tier" — whatever that is — teaches you how to make a fishing lure out of yarn, some feathers, and a hook. The lure is called a woolly bugger, which you think sounds funny, but the tie guy assures you that fish will find it irresistible.

As you're leaving Burr Oak Woods, Dad says: "I know where we could try out these woolly buggers. Wanna go?"

→ Why not? **Go to 30.**

→ I'm beat. Maybe another time? **Go to 38.**



Spotted bass

20 At Ketcherside Mountain Conservation Area, you shoulder your heavy backpack and step onto the Ozark Trail, a nearly 400-mile-long path that crosses some of the most rugged and beautiful wilderness in the state. Soon, you're zigzagging steeply uphill, huffing and puffing with every step. *What did you get yourself into?*

A thunderstorm blew through overnight, leaving the trail damp. At one point, you look down and glimpse a huge footprint smudged in the mud. Someone — someone barefoot and with huge feet — had walked this way earlier.

"Look what I found!" Dad's voice makes you jump. You were remembering a strange dream you'd had about Bigfoot.

"Blackberries!" Dad says. "They're everywhere."

Your brother is already stuffing his face with berries. You pop one in your mouth. It's juicy and sweet. Hoping to find more, you walk around a bend in the trail ... and come face-to-furry-face with a black bear.

What do you do?

➔ Run! You don't have to outrun the bear. You just have to outrun your brother. **Go to 21.**

➔ Back away slowly. **Go to 22.**



Blackberries

21 Before you can turn and run, the bear gives a huffy snort and bolts off into the brush. You hear vegetation crash as it keeps running. At least now you know what made those huge footprints!

When your heart returns to normal speed, you tell Dad what happened. He says that if you ever meet another bear, it's much safer to back away slowly.

➔ **Go to 23.**

American black bear



22 You raise your arms above your head to look as big as possible and back up slowly. In what you hope is a firm voice, you squeak out: "Get lost bear!"

The bear takes your advice and bolts off into the brush. You hear vegetation crash as it keeps running. At least now you know what made those huge footprints!

When your heart returns to normal speed, you tell Dad what happened.

➔ **Go to 23.**

23 You continue hiking, keeping an eye out for bears. The white OT trail markers lead you under towering shortleaf pines and forests of oaks and hickories. At one point, you stop to explore a sun-filled glade. Your brother's sharp eyes spot a lichen grasshopper, nearly invisible against the rocks, and you catch a glimpse of a colorful collared lizard dashing into a crevice among the stones.

Eventually, you reach a fork in the trail. Dad takes out his map, examines it, turns it upside down, scratches his head. "Which way should we go?" he asks.

➔ Left. **Go to 24.**

➔ Right. **Go to 25.**

Eastern collared lizard



24

The left fork of the trail runs mostly downhill. *Thank goodness!*

After about a mile of walking, you hear a strange roar. It's not a bear — you're sure of that — but the farther you walk down the trail, the louder the roar becomes. You're well ahead of Dad and your brother. You wonder if they hear it.

You walk slower now, not sure you want to discover what's making the noise. When you do, you're both shocked and delighted.

Water rushes through a series of chasms, cascading over the hillside, to crash against rocks several stories below. You notice a nearby sign. It says this is Mina Sauk Falls, and at 132 feet tall, it is the highest waterfall in Missouri.

When Dad and your brother catch up, the three of you scramble carefully down the rocky hillside to the base of the waterfall for selfies.

➔ **Go to 25.**

25

Ugh! Unfortunately for your aching calves, the trail rises uphill. You plod on, past rocky overlooks with spectacular views of the surrounding mountains and valleys.

Thankfully, you don't walk far before you reach the top of the hill. A plaque on the side of a granite boulder proclaims you've summited Taum Sauk Mountain. At 1,772 feet, this is the highest point in Missouri. You climb atop the boulder, and — at least until Dad joins you — you are the tallest person in the Show-Me State.

After some selfies to record your summit, it's a short, fantastically flat, walk to the trailhead. You've spent nearly the whole day hiking, and though your legs are tired, you feel peaceful and content. Dad says, "Should we head home or find somewhere to camp?"

➔ You've had enough nature for today. Let's head home.
Go to 38.

➔ How could you pass up a crackling campfire and s'mores?
Go to 6.



Wah'Kon-Tah Prairie

26

You have to look *waaayyy* into the distance to find a tree at Wah'Kon-Tah Prairie Conservation Area. You spray your clothes with bug repellent, slather on sunscreen, snug

down your baseball cap, and step into an ocean of wildflowers. A refreshing breeze sends waves rippling across the tall grasses.

Prairies once covered 15 million acres of Missouri — about a third of the state. Today, fewer than 51,000 acres remain. Exploring one of these unplowed grasslands is like going back in time to before the Show-Me State was settled.

An app called iNaturalist helps you identify what you see: Big bluestem grass grows high over your head. The delicate petals of a pale purple coneflower remind you of a ballerina's tutu. Compass plant's spiky leaves almost always point north and south — how cool is that! Your brother runs hither and yon, swinging a butterfly net. He returns periodically to show off what he's caught: a pipevine swallowtail ... a monarch ... a great spangled fritillary.

Your nose is buried in iNaturalist when you hear a loud, hoarse *hiiissss!* Under a clump of Indian grass is a huge snake, coiled as if to strike. What do you do?

➔ Run screaming back to the car. **Go to 27.**

➔ What's the big deal? It's just a snake. **Go to 28.**



Taum Sauk

27

You're nearly back to the car before Dad catches up.

"It's just a snake," he says. "It was more scared of you than you were of it."

You're not sure you believe him.

"It'd be a shame to end our road trip so early," Dad says. "How bout we find somewhere to camp?"

➔ Why not? **Go to 6.**

➔ You've had enough nature for now. **Go to 38.**

28

The iNaturalist app says you've found a bullsnake. Apparently these harmless reptiles can grow to be more than 6 feet long! You give the cranky snake plenty of room and walk around it.

You explore the prairie a bit longer, but eventually the scorching sun forces you back to the car.

"It'd be a shame to end our road trip so early," Dad says. "How 'bout we find something else to do?"

"I know just the thing," you say. "Let's go ..."

➔ "Camping." **Go to 6.**

➔ "Fishing." **Go to 34.**

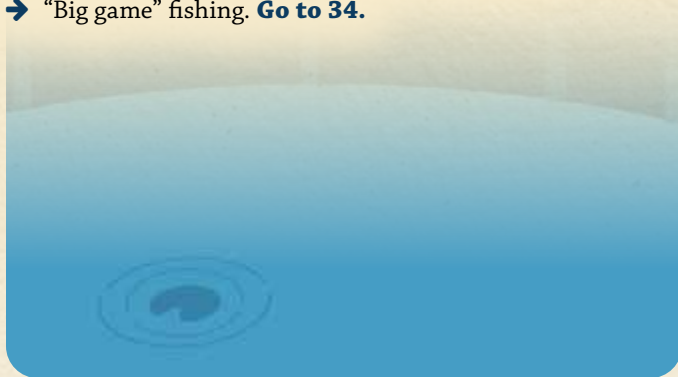
➔ "Home." **Go to 38.**

29 You tap the fishing button, and the screen displays a long list of conservation areas and river accesses. You had no idea there were so many places in Missouri where you could wet a line!

By now, you're strapped in to the passenger seat, and Dad is pulling the car out of the garage. "Where are we going?" he asks.

→ Fly-fishing on a cool Ozark stream. **Go to 30.**

→ "Big game" fishing. **Go to 34.**



30 Your canoe drifts silently in the swift current of the Eleven Point River. Tendrils of mist curl out of the cold, clear water. A wood duck, startled by your sudden appearance, squawks as it bursts into flight.

Dad steers the canoe toward shore and beaches it on a gravel bar. This section of the river, from Greer Spring Branch to Turner Mill, is a Blue Ribbon Trout Area. Catching a finicky rainbow from these waters will be tricky.

Dad reaches into his fishing vest, pulls out a fly box, and opens it with a flourish, as if it were a menu at a fancy restaurant.

"What's for dinner?" he asks. Which lure do you choose?

→ An Adams dry fly. **Go to 31.**

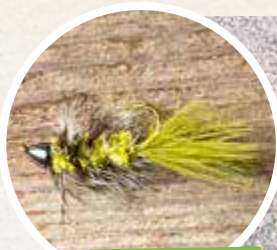
→ A woolly bugger. **Go to 32.**

31 You tie an Adams to the end of your line and cast it out into the calm water behind a large boulder. The fly lingers there for a moment until the current starts to tug it toward swifter water. Just when you're about to cast to a new spot, you hear a soft sip and see the fly disappear into the depths.

Your rod bends into a horseshoe as the trout dives. You lift up to put pressure on the fish, and suddenly it reverses course and starts jumping at the surface, trying to throw the hook from its mouth. Your brother, noticing the commotion, wades over with a landing net. The fish goes deep again and you let it go. When the trout stops running, you reel it in slowly, and your brother cradles it in the net.

After Dad snaps a photo, you slip the hook from the trout's mouth and let the silvery fish swim out of your hand.

→ **Go to 33.**



Woolly bugger

32 You tie on a woolly bugger, cast it into the tail of a rocky riffle, and watch the current drag the lure into a deep pool. You let the bugger sink for a count of five then begin pulling it back with a jerky stop-start motion. Just when you're about to cast to a new spot, you feel a sharp tug.

Your rod bends into a horseshoe. Suddenly, a smallmouth bass is splashing at the surface, trying to throw the hook from its mouth. Your brother, noticing the commotion, wades over with a landing net. The bass swims to deeper water, and you let it go. When it runs out of steam, you reel it in slowly, and your brother cradles it with the net.

After Dad snaps a photo, you slip the hook out of the smallmouth and let the bronze-colored fish swim out of your hand.

→ **Go to 33.**



Smallmouth bass

33 The rest of the day is a blur of catching trout and smallmouth, running the canoe over rapids and riffles, and cooling off with dips in the river's cool, spring-fed pools. All in all, a perfect day.

At the takeout ramp, Dad asks, "Should we head home or find somewhere to camp?"

→ It's been a blast, but you've had enough nature today.

Go to 38.

→ How could you pass up a crackling campfire and s'mores?

Go to 6.



Brown and rainbow trout

34

You've been fishing at Bull Shoals Lake for hours without a bite. Well, that's not exactly true. You've caught a few largemouth bass, but they aren't why you're here. You're here for something ... *larger*.

Striped bass aren't native to Missouri. Their home waters are along the Atlantic coast. Like salmon, they're born in fresh-water, spend their adult lives in the ocean, and return to rivers to spawn. An accidental stocking released these saltwater fish into Bull Shoals in 1998, and they have flourished here, even without a trip to the sea. Stripers can grow to ginormous sizes — the Missouri record is 65 pounds — which is one reason anglers love to catch them.

But you aren't having any luck. You slip another shad onto a hook and drop it into the water. Maybe this is the spot ...

The bait sinks slowly into the depths. Twenty feet, thirty feet, forty. You set the reel and wait.

Suddenly, you hear a crack of thunder, and the wind begins to rise. Almost at the same instant you feel a tug on your line. Was that a nibble?

➔ YES! SET THE HOOK! **Go to 35.**

➔ No, it's just the wind. We'd better motor in to beat the storm. **Go to 36.**

Bull Shoals Lake



35

You've definitely hooked a striper — or a dump truck — you aren't sure which.

Your rod bends into a horseshoe, and line screams off the reel. The fish dives, then rises. Speeds away, then returns. Your brother stands beside you, net at the ready.

You fight the fish for a solid 10 minutes. Angry clouds have now appeared on the horizon. Dad says you've got to land the fish *now*.

Luckily, the fish is starting to tire. Yard by yard you reel, and soon a huge, torpedo-shaped striper is splashing beside the boat.

Dad helps your brother net the fish. It's a huge, silver-sided beauty, at least 20 pounds. You quickly take a selfie with your catch, remove the hook, and return the striper to the lake.

➔ **Go to 37.**



36

Dad turns the key, but the boat's engine only sputters. Angry clouds appear on the horizon. And to make things more complicated, you've hooked a striper — or a dump truck — you aren't sure which.

Your rod bends into a horseshoe, and line screams off the reel. The fish dives, then rises. Speeds away, then returns. Your brother stands beside you, net at the ready.

You fight the fish for a solid 10 minutes while Dad tinkers with the engine. Now, just as your arms are starting to burn, you begin to bring the bass in. Yard by yard you reel, and soon a huge, torpedo-shaped fish is splashing beside the boat.

Dad stops tinkering long enough to help your brother net the fish. It's a huge, silver-sided beauty, at least 20 pounds. You quickly take a selfie with your catch, remove the hook, and return the striper to the lake.

Luckily, Dad gets the engine to start. The boat bounces across the wind-churned lake as Dad angles toward the boat ramp on the far shore.

➔ **Go to 37.**

37

Just as you reach the boat ramp, there's a crack of thunder and the heavens open up. You help Dad trailer the boat, then jump in the car and towel off. *Whew!* You barely made it.

As you're driving away, Dad asks, "Should we head home or find somewhere to camp?"

➔ In the rain? No thanks. **Go to 38.**

➔ This storm's going to blow over. How could you pass up a crackling campfire and s'mores? **Go to 6.**

38


On the drive home, you think about all the amazing things you've seen and done this weekend.

"Let's do this again," you say.

"Sure," Dad says. "But not next weekend. I'm planning to sleep in."

— THE END —

Matt Seek has explored hundreds of conservation areas across Missouri but has never found Bigfoot or space aliens. When he isn't hiking, fishing, or camping, he works as an editor for MDC.



NEVER LOSE TOUCH

**YOUR GUIDE TO
RECONNECTING WITH
NATURE**



➔ As the stress and struggles of life increase, we long for simpler times and happier moments. Nostalgia, or a sentimental longing and affection for days gone by when we felt happy, has been shown to counteract anxiety, loneliness, and boredom.

For many of us, we are nostalgic about nature because it's how we spent time as a kid. We jumped in puddles, shared stories around campfires, and chased fireflies on summer nights. We dug up worms for fishing and spotted squirrels for hunting. We came inside smelling like fresh air and pure happiness.

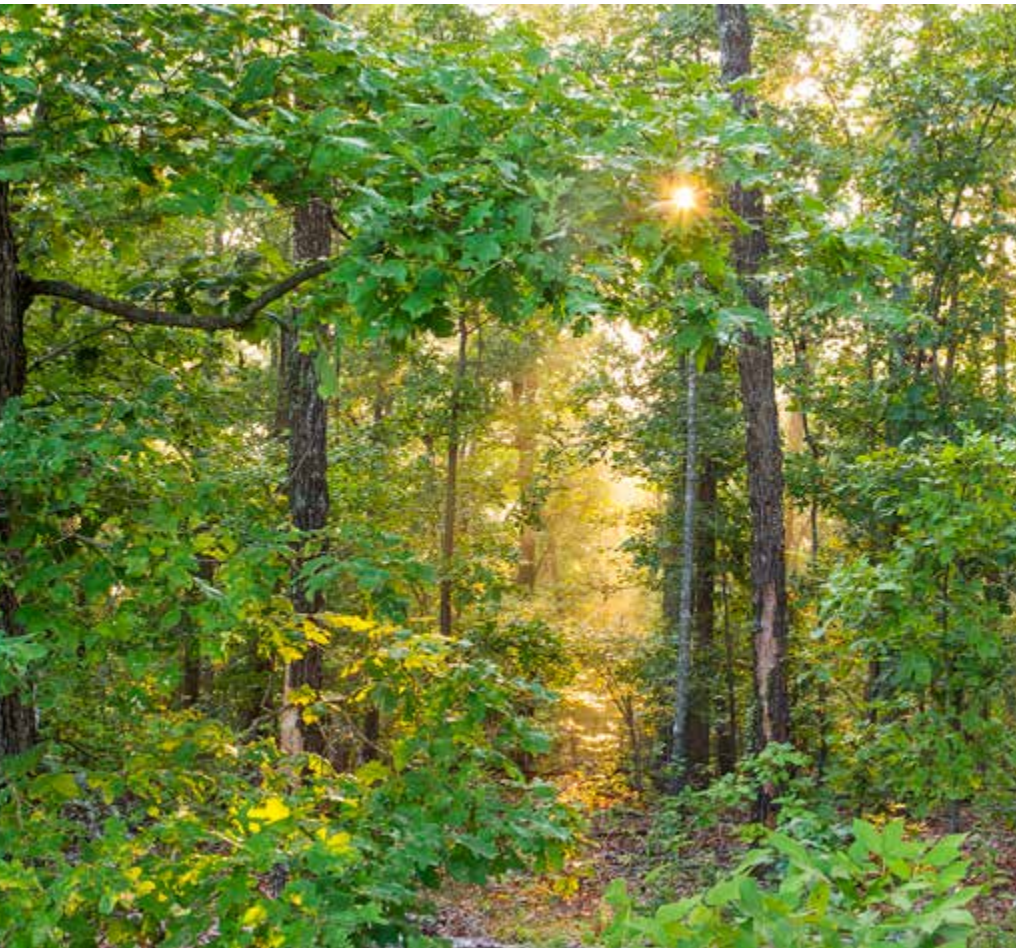
But then we grew up. We got greater responsibilities and bigger dreams, and both, unfortunately, came with less free time. Sometimes we juggle so many projects and priorities that days — maybe weeks — go by before we even look outside, much less go out to play. We are burned out, stressed out, and scheduled out. We inch along like this, year after year, even though we desperately need an intervention.

What if nature is the answer?

Nature has all the “cares” perfectly packaged together — self-care, family-care, team-care, and community-care. We are the only missing piece. We need to reconnect to nature just as much as nature needs us to care and conserve it.

In Greek, nostalgia is derived from the compound word that means homecoming. It's like nature is welcoming us home again after a long, hard season. Even with schedules getting back to normal and packed full already, nature wants you to stay connected and to never lose touch. This is your guide to experiencing nature, including fresh air and pure happiness (we hope!), with wonderful memories for the making. Take a deep breath and enjoy.





Health benefits of nature

Reaping the benefits of nature can be as easy as spending time in your own backyard. MDC recommends taking a dose of nature at least once a day to refresh and de-stress. Here are five ways it helps:



Exposure to nature reduces blood pressure, heart rate, muscle tension, and the production of stress hormones.



Spending time in nature, conservation areas, woods, backyards, and urban parks may ease stress levels.



Getting away from busy schedules allows people to connect with nature and themselves in a way that brings calm and a sense of well-being.



Feeling tired? Spending just 20 minutes outside can give your brain an energy boost comparable to a cup of coffee.



Taking a nature walk may increase attention spans and creative problem-solving skills by as much as 50 percent.

IDEAS FOR HOW TO CONNECT:

Connect with the outdoors by planting native plants, reading a book in a hammock, or hanging a hummingbird feeder. Enjoy nature at a park by having a picnic, throwing a frisbee with some pals, or simply by getting in some steps with your four-legged friend.



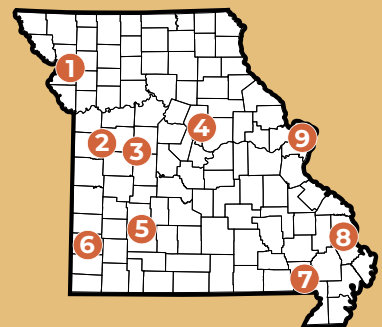
BIKING TIPS

Biking is a great way to get your daily dose of nature. Make sure to watch out for tree roots, branches, and other cyclists when riding.

BEFORE YOU GO

- ✓ Carry water
- ✓ Wear a helmet
- ✓ Check the weather before heading out
- ✓ Carry ID

CHECK OUT THESE AREAS WITH YOUR BIKE:



- 1. The Urban Trail**
15.8 miles
- 2. Rock Island Spur**
52.5 miles
- 3. Katy Trail State Park**
239.6 miles
- 4. MKT Nature and Fitness Trail**
9.3 miles
- 5. Frisco Highline Trail**
37.6 miles
- 6. Ruby Jack Trail**
16 miles
- 7. Wolf Creek Trail**
10.7 miles
- 8. Cape LaCroix Recreation Trail**
4.4 miles
- 9. Great Rivers Greenway**
128 miles

Learn more about bicycling on MDC areas at short.mdc.mo.gov/Zr9.

Capture the memories

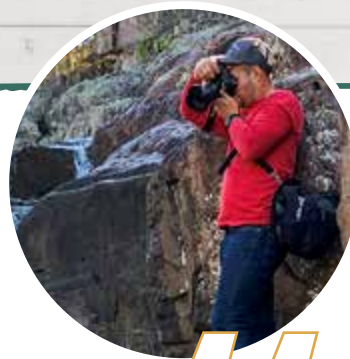
Unless you're a professional photographer, there's a good chance your camera gear is limited to a smartphone. But that won't prevent you from capturing great outdoor moments. MDC nature photographer David Stonner offers these helpful tips for how to use your phone's camera to capture memories.

Find the right light. You can really enhance the quality of your pictures if you can get the right light. The golden hour is right around sunrise or sunset when the light drops real low in the sky. Everything starts to glow and the shadows aren't as harsh. So searching out the right light and interesting angle on your subject is far more important than whatever equipment you're using.

Pay attention to the background. Even I accidentally mess up now and then, where I have a tree branch coming out of somebody's head, or power lines going through the middle of my picture. I was so focused on the flower or the furry animal that I failed to pay attention to everything else. Little details like that can make a difference.

Keep your distance from wildlife. When I'm hiking with a normal lens that doesn't have an extensive zoom, in the spirit of keeping my distance, I'll try and just make an environmental picture with the animal as a focal point within the broader landscape. And sometimes those are more impactful and effective than just the portrait. Which proves that you don't always need long lenses to get wildlife pictures.

Remember the rule of thirds. Take the camera frame and divide it into thirds horizontally and vertically, so you end up with nine squares. If you can put the subject at the intersection of two of those lines rather than right in the center, it tends to enhance the dynamic feel of the photograph. Details like that can help enhance the unspoken feeling of how the image affects you.



Cell phone technology is incredible. It was unfathomable five or definitely 10 years ago the quality of pictures that we can now get out of phones. The limitations of the gear are still there with a cell phone, but now you can quit worrying about the technical aspects so much and just start focusing on the artistic aspects. It frees up a lot of room to explore and experiment visually.

MDC Nature Photographer
David Stonner



FIND WHERE TO GO

Finding places to make memories in nature is easy with the free mobile app **MO Outdoors**.

Users can quickly find MDC places close to home for birdwatching, fishing, hiking, camping, or hunting. Available in Android or iPhone platforms at mdc.mo.gov/mooutdoors.



WILDLIFE WATCHING TIPS

Wildlife viewing in Missouri can be done anywhere from your backyard to a conservation area. See if you can identify these Missouri wildlife when you're out exploring. Because you won't see ALL of these amazing creatures in one place, you'll just have to get back out in nature again and again. Follow these tips for even greater success.

KEEP YOUR DISTANCE

Wild animals are wild, and safety is always the first priority.

BINOCULARS HELP

Choose binoculars that can be adjusted and also have central focusing to adjust for various distances.

TAKE A GUIDE

If you're out birding, a trusty bird field guide is a must. Check out a few field guides from your local library and see which works best for you.



1. Great horned owl
2. Elk
3. Eastern cottontail
4. Eastern bluebird
5. Wood duck
6. American black bear
7. Bald eagle
8. North American river otter
9. Eastern pondhawk dragonfly
10. Red fox
11. White-tailed deer
12. Giant swallowtail butterfly
13. Monarch butterflies
14. Three-toed box turtle
15. Wild turkey
16. Northern bobwhite
17. Red-headed woodpecker

i
**ID WHAT
YOU SEE**

Check out our
online field guide
to help identify
other Missouri
wildlife at
[mdc.mo.gov/
field-guide](https://mdc.mo.gov/field-guide).





Hang out in nature

Hammocking can reduce stress, improve sleep (nap time!), and improve your focus. It's also a great activity for any age. The gear is simple and easy to set up, and you can hammock almost anywhere — even in your own backyard.

HERE'S A FEW TIPS FOR HANGING OUT:

- ✓ **Pick the right place.** Check to make sure hammocking is allowed, if in a park or public area. Set up at least 200 feet away from any water source, and be mindful of leave no trace principles.
- ✓ **Select healthy trees** at least 6 inches in diameter, with no dead branches or wildlife to disturb, and use nylon/polyester tree-saver straps to hang your hammock.
- ✓ **Secure your hammock** about a 30-degree angle between the strap and ground, having the bottom of the hammock about 18-inches off the ground.
- ✓ **Listen to nature sounds** around you, or your favorite music playlist, to help you relax. Reading and sleeping are also great hammock activities.



LOOKING FOR A NEW PLAYLIST?

Check out our **Hammock Time Playlist** on Spotify when you find that sweet hammocking spot.



THE PERFECT PODCAST DOES EXIST

Join **Nature Boost** host Jill Pritchard as she explores everything nature has to offer — from health benefits and wildlife viewing, to outdoor recreation and unbelievable conservation stories. Subscribe and stream on Apple Podcasts, Spotify, or wherever you listen to your favorite podcasts.



Take a nature bath

The Japanese have been practicing shinrin-yoku or forest bathing since the 1980s. No, we are not asking you to get naked in the woods. It's more about simply unplugging and breathing in the natural world around you.

Forest bathing doesn't necessarily take a forest. Even a small patch of woods or local park will do. The key is to find a quiet spot to yourself. Silence your phone, find a comfortable place to sit if you like, and take some slow, deep breaths. Clear your mind of distractions and use all your senses to take in the sounds, smells, and sights of nature — everything from the daylight streaming through the trees to velvety moss on rocks and the chatter of birds and other wildlife. Relax and let nature wash over you.



HIKING TIPS

Hiking is a great way to get out and discover nature. It can be enjoyed by people of all ages and ability levels.

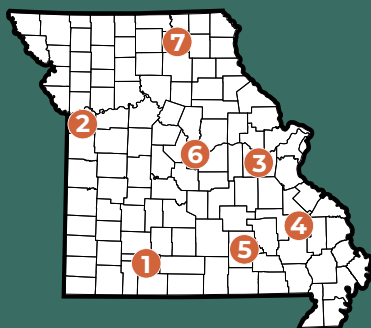
HOW TO PREPARE

- ✓ Wear comfortable shoes
- ✓ Plan to layer your clothing
- ✓ Pack water and a light snack

BRING

- ✓ Camera and binoculars
- ✓ Guides to identify birds, tracks, and wildflowers
- ✓ Family and friends

CHECK OUT HIKING OPPORTUNITIES AT:



- 1. Busiek State Forest and Wildlife Area**
18 miles of hiking trails
- 2. Bethany Falls Trail at Burr Oak Woods Nature Center** 1.33 mile hiking trail
- 3. Engelmann Woods Natural Area**
1.5 mile hiking trail
- 4. Millstream Gardens Conservation Area**
2 miles of hiking trails
- 5. Peck Ranch Conservation Area**
2.5 mile section of the Ozark Trail
- 6. Runge Conservation Nature Center**
2.4 miles of hiking trails
- 7. Big Creek Conservation Area**
0.7 mile hiking trail

Find more places to hike at mdc.mo.gov/discover-nature/places.

Never lose snacks

When you're out spending time in nature, chances are you might need a snack. Customize the trail mix of your dreams to conquer those mid-hike munchies with the ingredients below.

SALTY AND CRUNCHY

Nuts such as peanuts, almonds, cashews, pistachios, or pecans

Seeds such as pumpkin or sunflower seeds

Banana chips

Mini pretzels, sesame sticks, or cheese-flavored crackers

Granola or oat, rice, or wheat cereal

Mini graham crackers

SWEET AND CHEWY

Dried berries such as cranberries, cherries, or blueberries

Dried fruit such as raisins, apples, pineapples, papaya, or mangoes

Candy-coated milk chocolates or peanut butter candy

Butterscotch or chocolate chips (white, dark, or milk chocolate)

Mini marshmallows

Yogurt-covered raisins or peanuts



Give back

Nature needs to be cared for to keep it thriving. The good thing is there are many ways to contribute to the conservation community. Here are just a few ideas to get you started:

- ✓ **Find a local Stream Team at mostreamteam.org.** Volunteers can monitor water quality, stabilize stream banks, and plant streamside trees.
- ✓ **Participate in a bird count.** Experienced birders can become citizen scientists by helping with the National Audubon Society's annual Christmas bird counts. Find out more at short.mdc.mo.gov/Zrj.
- ✓ **Plant natives.** Native plants are a food source for bees, butterflies, and other pollinators.



For even more ways to reconnect with nature, visit mdc.mo.gov/NeverLoseTouch.

Get Outside

in JULY → Ways to connect with nature

Wild grapes



Uncommon Visitors

Butterfly weed, Missouri's only milkweed with bright orange flowers, blooms through September. It's one of our few truly orange native flowers. While you're admiring it, keep an eye out for **coral hairstreak** butterflies. This uncommon butterfly has been described as addicted to the blossoms of butterfly weed — other flowers are practically ignored when this plant is present. Another uncommon visitor this month? Bella moths. Also called the calico or rattlebox moth, this is one of the most beautiful moths in North America. It's active during the day, feeding on goldenrods, but look for bella moths at night near light.



Coral hairstreak and butterfly weed

Early Morning Caller

A variety of flying insects, including click and scarab beetles, crane flies, and plume moths, are attracted to lights at night. Many of them hang around until morning. Look for them on the side of your house in the early morning hours.



Click beetle

VIRTUAL

Native Plants

Thursday • July 15 • 12-1 p.m.

Virtual event at Anita B. Gorman Conservation Discovery Center, 4750 Troost Ave., Kansas City, MO 64110

Registration required at the Deep Roots website at deeproots.org/native-plants-at-noon

Virtually tour the native landscape at MDC's Anita B. Gorman Conservation Discovery Center. Guided by native landscape specialists Alix Daniel and Cydney Ross, this monthly series features a live look at native plants of interest throughout the year. This program is a partnership with Deep Roots.

Natural Events to See This Month

Here's what's going on in the natural world.



Bluegill nesting continues into late July.



Southern red-backed salamanders lay eggs through July.



Eastern bluebirds are territorial during breeding.

Time for Wine

Missouri's summer grape matures in July. Look for its dark blue to black globe-shaped berries. This species, in its "Norton" hybrid/cultivar form, is the state's official grape. Producing a dry, "big" red wine with complex flavors, Norton is the cornerstone of the Missouri wine industry. It is probably the oldest native American grape variety used for commercial wine production.



Spider Homes

You may notice your lawn or ornamental plants dotted with webs. Each of these webs is home to a grass spider. Grass spiders build delicate, sheetlike webs in grass and shrubs. They live beneath them and come out to catch their prey, keeping the insect population in check. If you tap on one of these webs with a stick, you might capture the spider's attention and it may emerge thinking it has caught dinner!

Flowering Frenzy

Many of our native wildflowers, including several varieties of sunflowers, coneflowers, and black- and brown-eyed Susans, begin blooming in July. To help you identify wildflowers, visit short.mdc.mo.gov/Zri.



Sunflower



Purple coneflower



Black-eyed susan



Broad-banded watersnakes can have up to 40 young in one litter.



Young striped skunks begin foraging.

RECONNECT WITH NATURE

Adventure can happen anywhere. Download the free **MO Con Mag** app to take the *Missouri Conservationist* wherever you go.

Available on the **App Store** | Download for **Android**

Places to Go

NORTHEAST REGION

Big Creek Conservation Area

Good trails make good neighbors

by Larry Archer

✧ As the old saying goes, good fences make good neighbors. But in the case of Big Creek Conservation Area (CA) in Adair County, it's good trails that make the connection between it and its neighbors.

Located on 1,064 acres southwest of Kirksville, Big Creek CA sits between the city to the east and Thousand Hills State Park to the west, connecting the two with a multi-use (hiking and biking) trail that traverses the area, said Big Creek CA Manager Ryan Jones.

"Being that it's right next to Kirksville, there's a trailhead for Thousand Hills multiuse trail on Big Creek, so there's a lot of people from the public that either start or end their hike on Big Creek," Jones said.

The uses of the multiuse trail, which passes through savannah and woodland habitats, go beyond hiking and biking to include birding and running, he said.

"A lot of people go out there to bird because it's a mixture of grassland and forest, so there's the whole suite of different habitats and species," he said.

The area — in cooperation with the park and a local running group — also hosts an annual 10K race in August and half marathon in October.



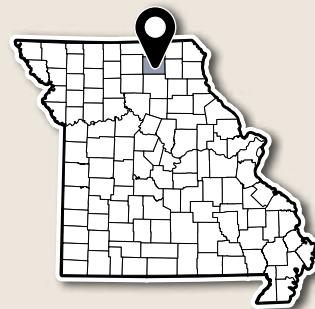
"Natural community-wise, we do some savannah and woodland restoration along the trail, so they'll see good woodland and savannah habitat as well as abundant wildlife."

—Big Creek CA Manager
Ryan Jones

DAVID STONNER



Dew decorates a spider web at sunrise as fog rises over Pond 5 at Big Creek CA. Numerous small ponds and creeks dot the area in the low elevations (inset).



BIG CREEK CONSERVATION AREA

consists of 1,064 acres in Adair County. From Kirksville, take Business Highway 63 south 0.50 mile, then take Highway 11 west 1.7 miles, then take Route H north 1.7 miles, and take Rainbow Basin Trail west 1 mile.

40.1719, -92.6169

short.mdc.mo.gov/ZRV 660-785-2420

WHAT TO DO WHEN YOU VISIT



Birdwatching Included in the National Audubon Society's Thousand Hills Woodland and Forest Important Bird Area (short.mdc.mo.gov/ZPA). Included in the Great Missouri Birding Trail (short.mdc.mo.gov/ZRr). The eBird list of birds recorded at Big Creek CA is available at short.mdc.mo.gov/ZRK.



Camping Designated primitive camping areas adjacent to area's three parking lots. Open camping (walk-in, float-in, backpack) allowed except during firearms deer and turkey seasons.



Fishing Three stocked fishing ponds. Black bass, catfish, sunfish.



Hiking The 0.75-mile Thousand Hills Trail is open to hiking and biking and connects the eastern side of Big Creek CA with neighboring Thousand Hills State Park. Mowed field roads also allow hiking access to the area.



Hunting Deer and turkey. Deer and turkey regulations are subject to annual changes. Please refer to the Spring Turkey or Fall Deer and Turkey booklets for current regulations.

Also **dove** and **squirrel**

WHAT TO LOOK FOR WHEN YOU VISIT



Southern flying squirrel



Prairie kingsnake



Red-eyed vireo



White-tailed deer



Missouri Gooseberry

Ribes missouriense

Status

Scattered nearly statewide

Size

Height: to 3 feet; spreads to 6 feet wide

Distribution

Common except in southeastern lowlands

A favorite Missouri wild edible, gooseberries can be used for pies, cobblers, jams, and jellies. People will brave the thorny bushes to collect the tart, tasty fruits. Gooseberries flower from April to May, providing an early nectar source for springtime insects, and fruits from June to September. The whitish-green drooping flowers of Missouri gooseberry bloom in clusters of two to four. The fruit is borne from the round pistil at the base of the flower.



Did You Know?

Another name for gooseberry is feverberry because a tea made with the crushed berries was believed to help break a fever. Try a teaspoon to one cup of hot water (adding a sweetener is probably a good idea).

Gooseberry leaves may be used raw, in a tossed salad or in slaw, and the young, dried leaves also may be used for making tea. Pick the young leaves and allow three months to dry. To make tea, add a teaspoon of crushed gooseberry leaves to one cup of hot water, and let it steep several minutes.



ECOSYSTEM CONNECTIONS

Many birds and mammals relish the fruits of gooseberry, despite the thorny stems. Birds that eat gooseberries include catbirds, thrashers, robins, and waxwings. Foxes, skunks, squirrels, and mice also eat the fruits and ultimately disperse the seeds away from the parent plant.

Many types of bees, flies, butterflies, moths, and wasps visit the flowers for nectar, pollen, or both. Even hummingbirds may be seen visiting gooseberry flowers for nectar.

Gray comma butterfly caterpillars eat gooseberry leaves; the early stages feed on the undersides of the leaves, so it's harder to see them.

Gooseberry shrubs furnish excellent cover for small mammals and birds. In the fall, gooseberry bushes catch and hold dead leaves in their low-lying branches, giving good cover for the soil and for various kinds of small animals.

Outdoor Calendar

❖ MISSOURI DEPARTMENT OF CONSERVATION ❖



Free MO Hunting and MO Fishing Apps

MO Hunting makes it easy to buy permits, electronically notch them, and Telecheck your harvest. MO Fishing lets you buy permits, find great places to fish, and ID your catch. Get both in Android or iPhone platforms at short.mdc.mo.gov/Zi2.

FISHING

Black Bass

Impounded waters and non-Ozark streams:
Open all year

Most streams south of the Missouri River:

- ▶ Catch-and-Release:
March 1–May 21, 2021
- ▶ Catch-and-Keep:
May 22, 2021–Feb. 28, 2022

Bullfrogs, Green Frogs

June 30 at sunset–Oct. 31, 2021

Nongame Fish Giggling

Impounded Waters, sunrise to sunset:
Feb. 16–Sept. 14, 2021

Streams and Impounded Waters,
sunrise to midnight:
Sept. 15, 2021–Feb. 15, 2022

Paddlefish

On the Mississippi River:
March 15–May 15, 2021
Sept. 15–Dec. 15, 2021

Trout Parks

Catch-and-Keep:
March 1–Oct. 31, 2021

Catch-and-Release:
Nov. 12, 2021–Feb. 14, 2022

HUNTING

New Black Bear Hunting Season

MDC will offer Missourians the state's first black bear-hunting season in modern history starting this fall. Learn more at short.mdc.mo.gov/ZrK.

Black Bear

Oct. 18–27, 2021

Bullfrogs, Green Frogs

June 30 at sunset–Oct. 31, 2021

Coyote

Restrictions apply during April, spring turkey season, and firearms deer season.

Open all year

Crow

Nov. 1, 2021–March 3, 2022

Deer

Archery:
Sept. 15–Nov. 12, 2021
Nov. 24, 2021–Jan. 15, 2022

Firearms:

- ▶ Early Youth Portion (ages 6–15):
Oct. 30–31, 2021
- ▶ November Portion:
Nov. 13–23, 2021
- ▶ Late Youth Portion (ages 6–15):
Nov. 26–28, 2021
- ▶ Antlerless Portion (open areas only):
Dec. 4–12, 2021
- ▶ Alternative Methods Portion:
Dec. 25, 2021–Jan. 4, 2022

Dove

Sept. 1–Nov. 29, 2021

Elk

Archery:
Oct. 16–24, 2021

Firearms:
Dec. 11–19, 2021

Groundhog (woodchuck)

May 10–Dec. 15, 2021

Pheasant

Youth (ages 6–15):
Oct. 30–31, 2021

Regular:
Nov. 1, 2021–Jan. 15, 2022

Quail

Youth (ages 6–15):
Oct. 30–31, 2021

Regular:
Nov. 1, 2021–Jan. 15, 2022

Rabbit

Oct. 1, 2021–Feb. 15, 2022

Sora, Virginia Rails

Sept. 1–Nov. 9, 2021

Squirrel

May 22, 2021–Feb. 15, 2022

Teal

Sept. 11–26, 2021

Turkey

Archery:
Sept. 15–Nov. 12, 2021
Nov. 24, 2021–Jan. 15, 2022

Firearms:

- ▶ Fall: Oct. 1–31, 2021

Waterfowl

See the Migratory Bird and Waterfowl Hunting Digest or visit short.mdc.mo.gov/ZZx for more information.

Wilson's (Common) Snipe

Sept. 1–Dec. 16, 2021

Woodcock

Oct. 15–Nov. 28, 2021

For complete information about seasons, limits, methods, and restrictions, consult the *Wildlife Code of Missouri* at short.mdc.mo.gov/Zib. Current hunting, trapping, and fishing regulation booklets are available from local permit vendors or online at short.mdc.mo.gov/ZZf.



Serving nature and you[®]



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on Instagram**

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A sedge wren perches on a prairie blazing star, as if taking in its natural beauty. This little bird may be onto something. July is a great time to seek out Missouri's native wildflowers — many of which are in full bloom. What wildflower will you discover? Get out and see.

📷 by **Noppadol Paothong**

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